



F-35 Lightning II Program

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" THE ONLY ONE IN THE CORPS: MCAS BEAUFORT F-35 PILOT TRAINING CENTER GEARING UP "

The new F-35 Pilot Training Center at Marine Corps Air Station Beaufort, S.C., is gearing up for full operations.

"Right now, we are basically in pre-deployment training," explained Lieutenant Colonel Luis E. Villalobos, the state-of-the-art facility's officer in charge (OIC). "We have all the gear here, and we're exercising our training system with the Lockheed staff," he added. Lockheed-Martin is the prime contractor for the F-35 Lightning II Joint Strike Fighter program and will provide full-time staff to assist with training.

The training center is the location for all academic and simulator pilot training for F-35B STOVL (short takeoff and vertical landing) Marines and foreign partners who have bought into the program, which includes Great Britain and Italy.

"This will be the center for STOVL training," Villalobos asserted. "It is the only facility like it in the Marine Corps and the only location where we will have the fleet replacement squadron when VMFAT [Marine Fighter Attack Training Squadron] 501 gets here." A fleet replacement squadron is responsible for preparing pilots for service in the operating forces. Beaufort is slated to eventually receive at least two training squadrons and two operational squadrons.

The Marine Corps F-35B variant eventually will replace and perform the roles of three "legacy" aircraft: the F/A-18 Hornet, AV-8B Harrier II and EA-6B Prowler. The F-35B is the only Joint Strike Fighter variant that features STOVL capabilities. The Air Force will fly the "A" variant, and the "C" model is for the Navy and Marine Corps.

Marine Corps pilots currently flying the three legacy aircraft have begun transition training to the F-35, and the only place inside the Corps for this training will be Beaufort. "Between June and September we'll have all the VMFAT-501 aircraft and squadron personnel relocating, and in October we'll start training," said Villalobos, who is a Harrier pilot.

VMFAT-501 pilots, maintainers and support Marines have been stationed at Eglin Air Force Base in Florida developing the flight and maintenance operational doctrine for the F-35B. (See January 2013 Leatherneck for a complete article about their groundbreaking work at Eglin.) Later this year the squadron will complete its relocation to Beaufort.

The squadron formed in April 2010, assuming the lineage of Marine Fighter Attack Squadron (VMFA) 451, originally known as the "Blue Devils" in World War II, then the "Warlords" in the mid-'50s and on to Operation Desert Storm. VMFA-451 was decommissioned in January 1997.

F-35B aircraft maintainers will continue to receive their training at Eglin's Integrated Training Center along with Air Force and Navy personnel, Villalobos noted, since the training infrastructure already is established there.

Pilots transitioning from legacy aircraft will be the first to channel through Beau-fort for training. New accession pilots are projected to begin training in mid- to late 2015.

"We have three milestones we've been tracking to," Villalobos said, explaining that the first milestone was met in July 2013 when the training facility was completed and the second in January when the facility was deemed "RFO," or ready for operations.

"Once we have relocated -501 here, and we have a full complement of training re-sources, we'll be ready to start our first training class on October 6," said LtCol Villalobos, punctuating the start of the third phase.

The methods by which pilots will receive their training probably would have been considered science fiction at the turn of the century when the X-35, the experimental aircraft that would lead to the F-35, was just a schematic on paper.

"Eventually this facility will have eight full-mission simulators and top-of-the-line technology capable of training to the fullest extent of the aircraft, using actual aircraft software," explained Villalobos. While the majority of training will be for the "B" STOVL model, pilots can be trained on any of the F-35 variants by changing a simulator switch and possibly loading different software into the system.

Villalobos explained that training to the jet's full capabilities in actual aircraft is difficult due to the vastness of the aircraft capabilities as compared to the limited air space and ranges. "The benefit of flying the simulator is that we can train pilots for everything that this aircraft is capable of doing," he said. The simulators are so advanced that pilots will feel just like they're flying training or combat missions.

The F-35 is a fifth-generation fighter aircraft, and the "B" model uses a new idea of a STOVL-lift system that is vastly different from the AV-8 system.

The F-35, in all its variants, offers cutting-edge stealth capability, high-performance airframes, advanced avionics features and highly integrated computer systems. As a package, those advancements enable pilots to network with other elements in the operational, training or combat theater to achieve a dominating advantage in situational awareness.

The Marines' "B" variant is the only F-35 model capable of short takeoff and vertical landing; what sets it apart from the previous Harrier-generation STOVL technology is that the F-35B also can fly at supersonic speeds, horizontally.

For the Marines or other military personnel in combat on the ground, this means the "B" model will get there fast from a near-by austere land base or a carrier to provide air superiority, combat situational awareness to the Marine air-ground task force commander and close air support on time and on target.

"The training system, which encompasses academic lectures, interactive courseware and high-fidelity mission system trainers, enable the pilot to quickly and safely adapt to the F-35B," said Major Adam Levine, -501 operations officer, in an earlier Leatherneck interview. "The unique nature of teaching and learning a new airplane without a two-seat variant represents a departure from the AV-8B and F/A-18 pilot training. The overwhelmingly positive response from our initial transition pilots has been the affirmation of the training system."

Initially, there only will be two simulators in Beaufort, but eventually there will be eight that can fly solo or be linked together so that pilots will get the virtual equivalent of flying in formation with other F-35s or legacy aircraft.

The Corps' first operational F-35 squadron, VMFA-121, was formed in 2012 at MCAS Yuma, Ariz., and is in the build-up stage with a projection for initial operational capability by July 2015.

"As we start producing pilots here, and aircraft are being delivered either to Yuma or here to Beaufort, we'll begin sending trained, qualified pilots to the squadrons," asserted Villalobos, adding that the goal is for the final product emerging from the training center to be operational-ready pilots.

"That is very real to us, so we want to ensure that pilots have all the tools to take on any missions they are assigned when they leave here," he emphasized.

Villalobos has combat experience from Operation Iraqi Freedom (OIF) as well as service with the F-35 Joint Program Office in Washington, D.C. He was the training lead for all F-35 acquisition, implementation and other areas related to the training system. His primary mission now is providing leadership at the training center.

"I am here to directly support the MAG-31 commanding officer with everything he requires this training center to do," he said, specifying that the center falls under the operational control of Marine Aircraft Group 31.

The training syllabus will evolve as time goes on. "At first, the training evolution will be shorter," the OIC explained. "The syllabus will evolve as additional software packages are delivered, and pilots will train to these new capabilities."

Staffing the facility will be an evolving process as well.

"As the Marine Corps downsizes, we are not looking to place a high demand on the Marine Corps footprint to this training center," said Villalobos, adding that initially Lockheed-Martin staff will be operating the training system under Marine Corps standards, similar to what has been done in the past with legacy aircraft. "As -501 receives more aircraft, they will eventually be outfitted to the T/O [table of organization] they need."

The training center is intended as a self-contained immersion environment where everything they need is there, from classrooms and research centers to simulators. "Everything associated with this facility is designed to be an extension of a squadron, a ready-room environment where they can hang their hat, sit down and study," said Villalobos. "For the most part they won't take anything home at night. We have all the resources here that will make them better aviators."

The OIF veteran brings his combat experience to the classroom and recognizes the significance of merging legacy communities into a single aircraft. "When we were in the ready rooms in Al Jaber [Air Base, Kuwait] just before OIF started, we

saw it all coming together with Hornet and Harrier squadrons," he recalled. "It was varsity; it was game time, the Super Bowl. We took all the things we learned there as an attack community, we've brought it to a new platform, and now we're actually evolving."

As training-center staff prepares for full operations, work elsewhere on base continues with the F-35 activation plan.

Retired Marine LtCol Troy Ward has been at the Beaufort air station since 2007, developing the F-35 site-activation task force there, coordinating efforts by military and community resources.

"This is a standardized concept for site activation anywhere the F-35 will be flown," he said. "Once the first squadron arrives, the task force will stay active for another year or so to help coordinate operations. The task force at Yuma, for example, has run its course," he said, reiterating that the operational squadron at Yuma was established in September 2012.

The task force at MCAS Beaufort was the first established in the Marine Corps. The process used base department heads as leads in functional areas such as logistics, public works, environmental safety and health.

"The task force conducted strategic planning, anticipating requirements and organizing the staff so that when the F-35 Joint Program Office conducted its site survey in August 2008, we were ready to begin the transition to the F-35," explained Ward.

He further explained that the 103,000-square-foot pilot training center was accepted for occupancy in July 2013 and was undergoing final interior work, preparing it for the first class in October 2014. The first squadron hangar was accepted in November 2013, a step required to begin detailed, internal work such as electrical and computer wiring, utilities, furniture and other work needed for the arrival of VMFAT-501 this summer. The plan calls for a new hangar per squadron as they activate; the second hangar for the first operational squadron was pending contract award at the end of last year with work due to start sometime during FY 2014.

Other construction was needed to prepare for the F-35B. The aircraft parking ramp in front of the new hangar doubled in size. There also were reinforced landing pads needed for vertical takeoffs and landings. In total thus far, cost of construction is about \$70.3 million, with more expected as the program develops. But Ward emphasized it's not about buildings.

"It's about providing capability to the Marine Corps to train our warfighters to go out and defend our country," he asserted. "We're proud of the contributions we've made, but the 50-year life cycle of this program is a capability for our nation and one that Marine aviation will enjoy for decades."